

CLAIMS

What is claimed is:

5 1. Apparatus for contact-less communications system comprising:

a separable transformer means including a primary upstream transformer half and a secondary upstream transformer half adapted for magnetic coupling, at least one of said halves having a core of ferrite material for operating at the maximum upstream bit rate;

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a power supply circuit connected to the said secondary upstream transformer half including a rectifying means for creating a constant DC voltage from the alternating voltage induced in the secondary upstream transformer half by the primary upstream transformer half;

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a clock recovery circuit connected to the said secondary upstream transformer half;

an amplitude modulation means to induce the upstream data in the primary upstream transformer half, said data being sent through the inductive link set up by the primary and secondary upstream transformer halves;

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a data recovery circuit connected to the said secondary upstream transformer half; including an amplitude demodulation means for receiving the upstream data sent via the inductive link set up by the primary and secondary upstream transformer halves;

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a second contact-less communications means to provide the downstream data link;

a downstream phase modulation means with input connected to the downstream data in and controlled by the output of the clock recovery circuit, with its output connected to the said primary downstream transformer half;

a downstream data recovery circuit including a phase detector means connected to the secondary downstream transformer half.

5 2. Apparatus for contact-less communications system as per claim 1, where

a phase modulation means with input connected to the said secondary upstream transformer and with output connected to the said primary downstream transformer half are implemented as a crossbar switch controlled by the downstream data.

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3. Apparatus for contact-less communications system as per claim 1, where

a downstream data recovery circuit including a phase comparator means with inputs connected to the secondary downstream transformer half and the primary upstream transformer half, and its output being the downstream data out.

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4. Apparatus for contact-less communications system as per claim 1, where

a phase modulation means with input connected to the said secondary upstream transformer and with output connected to the said primary downstream transformer half are implemented as a crossbar switch controlled by the downstream data;

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a downstream data recovery circuit including a phase comparator means with inputs connected to the secondary downstream transformer half and the primary upstream transformer half, and its output being the downstream data out.

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5. Apparatus for contact-less communications system as per claim 1, where the downstream data link is implemented as an optical link;

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an amplitude modulation means including an infrared diode to transmit the downstream data;

a downstream data recovery circuit including an infrared photo diode to receive the downstream data.

6. Apparatus for contact-less communications system as per claim 1, where the downstream

5 data link is implemented as an optical link;

an amplitude modulation means including a light emitting diode to transmit the downstream data;

10 a downstream data recovery circuit including a light emitting photo diode to receive the downstream data.